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# The Immunity of the Many: Ethical Considerations of Vaccinations in Light of Herd Immunity

BY SOPHIA KOVAL '21

**Figure 1:** An anti-vaccine bumper sticker illustrating the poor reputation vaccines can receive despite proven efficacy.

**Source:** Flickr

## Introduction

Vaccines are considered one of the most successful public health measures of the 20th century. (Centers for Disease Control, 2013) While their ability to protect individuals from viral diseases is amazing in itself, vaccines' real power is found in their ability to protect entire populations with a web of combined immunity. Herd immunity, which is the capability of an assembly of vaccinated people to protect those within their community who are not vaccinated, is what truly changed the landscape of public health once vaccines became widely distributed.

The mechanics of herd immunity are simple: when the vast majority of people have immunity against deadly viruses, an infected person is unlikely to come in contact to someone without immunity. This in turn prevents the disease from spreading throughout the community. Every community has members who cannot be vaccinated for medical reasons; namely infants, the elderly, and people with immune system deficiencies. There are also people who receive vaccines that do not successfully or fully immunize them for unpredictable, immunological reasons. Herd immunity protects these individuals from infectious diseases indirectly, and allows them to live long, healthy lives (Metcalf et al., 2015). In America, vaccines are cheaper and

easier to access than ever before. Against the odds, our herd immunity is weakening rapidly as the nation's vaccination rates slowly drop ("America's Vaccine Dilemma," 2017).

## The Anti-Vaccine Movement

The anti-vaccine movement is a modern push against vaccination. Members of the movement delay their children's vaccinations or refuse to vaccinate them altogether, thereby weakening the herd immunities of their communities. It is estimated that in the United States, approximately 10 percent of American parents delay one or more of their children's vaccines, while one percent of parents choose for their children not to receive any vaccines at all (Pemberton, 2014).

Parents who choose not to vaccinate their children have varied motivations, all of which center around vaccine safety. Though there have always been people skeptical of vaccines, their numbers soared in 1998 when Andrew Wakefield, a gastroenterologist, published an article suggesting that vaccines are connected to autism in children. The paper has since been retracted, thoroughly and repeatedly refuted by further studies, and Wakefield's medical license has been revoked (Dyer, 2010). However, the media fallout after the article's publication spread Wakefield's message enough



to send MMR vaccination rates plummeting. Celebrity endorsement and word of mouth have helped amplify this fear, often creating small communities of parents who all choose not to vaccinate. These small communities are the most vulnerable to infectious diseases.

Unfortunately, we have already seen the consequences of diminished herd immunity in the re-emergence of measles and other infectious diseases that were once considered eradicated in the US. Most notable is the Disneyland measles outbreak of 2015, where 189 people who visited the southern California amusement park were infected with measles (NBC News, 2015). More recently, 44 Somali-Americans were diagnosed with measles in Hennepin County, Minnesota. Like in Hennepin County, in some areas of southern California, only around 40 percent of people are vaccinated against measles - less than half of the 95 percent needed to prevent an outbreak (Howard, 2017). Lawmakers, doctors, and public health officials alike are at a loss of how to prevent more of these outbreaks from occurring. They know that they must somehow combat the anti-vaccine movement, but are unsure of how to go about doing so.

## The Ethics of Addressing Anti-Vaxxers

Herd immunity entails that the choice of whether or not to vaccinate children is not only a personal one - it affects the health and safety of entire communities. As a result, all states have a list of required vaccines for children attending public schools. However, there are some states where it is easier to evade vaccination requirements than others. Currently, 3 states allow only medical exemptions to mandatory vaccinations. Most states allow medical and religious exemptions, and a handful allow an additional "philosophical" exemptions. There is more variation in how much paperwork is required for each of these exemptions, but anti-vaccine parents are typically able to take advantage of philosophical and religious exemptions (Sandstrom, 2016).

In the wake of the Disneyland measles outbreak, California passed a law that eliminated the state's philosophical and religious exemptions, making it one of three states that only allow medical exemptions to mandatory vaccinations. This change in law was heavily contested by state lawmakers, but was passed on party lines in 2016 (Nyhan, 2017).

On one hand, eliminating all non-medical exemptions for mandatory vaccinations is the most direct way to return vaccination rates to safe levels. While some parents will send their children to private schools or find some way to procure a medical exemption, most families will

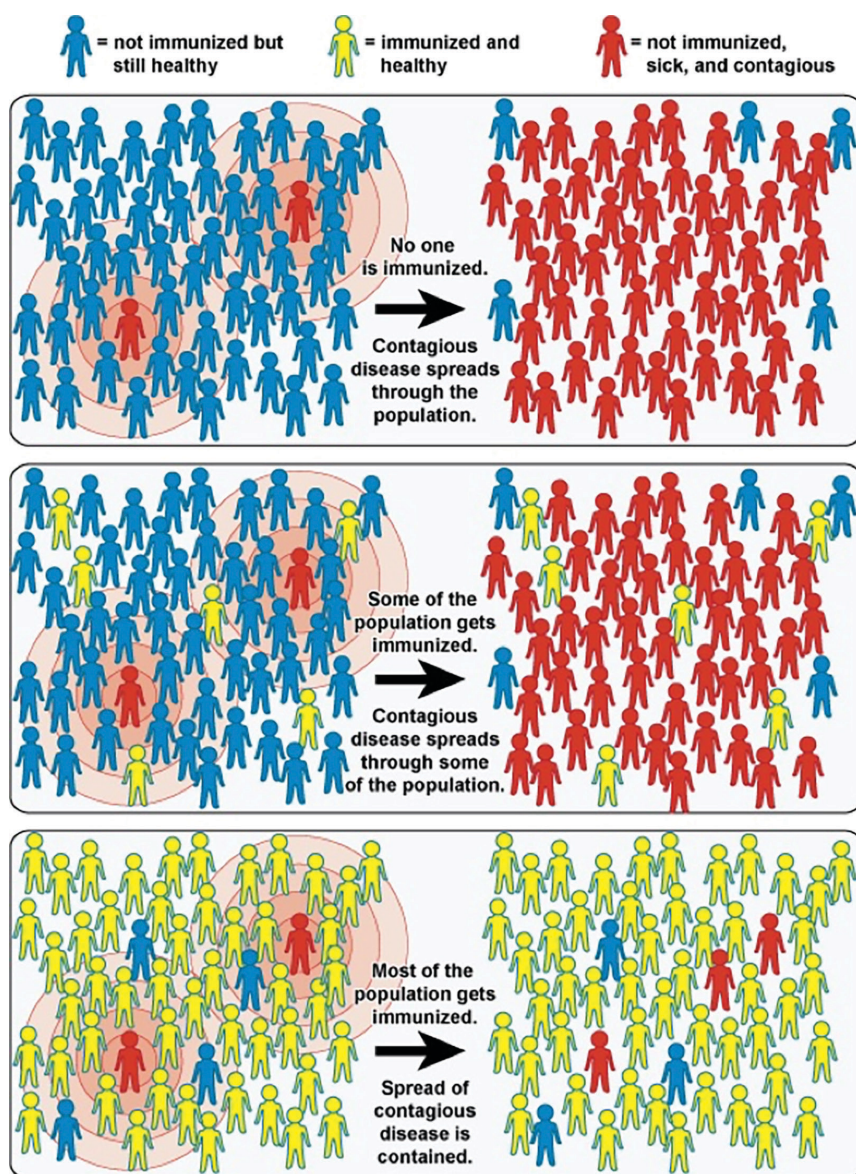
be forced to vaccinate their children in order for them to be allowed to attend public school. This strategy, however, brings to mind a number of moral and political issues.

## Rights and Responsibilities

The foremost consideration when considering the elimination of all non-medical exemptions for mandatory vaccination is whether state governments are justified in requiring a medical procedure for healthy children. A prominent argument is that parents have a right to decide what happens to their children's bodies, and that the state should not be able to make mandates on children's bodies. Mandatory vaccination policies are also contingent on public school attendance. Children in the US have a right to attend public school, which raises the question of whether or not it is justifiable to bar unvaccinated children from attending those schools. On the other hand, children who threaten the safety

**Figure 2:** Containment of disease via herd immunity.

Source: Wikimedia commons.



“Vaccines may have the same politicized fate as climate change — despite decades of research and agreement among the scientific community, the issues may be supported by one party, and rejected by the other.”

of their teachers or peers are expelled from schools - states must decide whether the danger of weakened herd immunity is comparably dangerous to the members of their school community, and whether it constitutes a similar consequence.

A broader possible consequence of bills like California's are that they might have the potential to politicize vaccines. Currently, vaccines have bipartisan support. However, California's bill eliminating non-medical exemptions passed on party lines. Dartmouth professor of government, Brendan Nyhan, was concerned that this circumstance would spark the beginning of vaccination being a partisan issue, which would be even more disastrous to herd immunity and public health. Nyhan has not found his concern to be true, but is hesitant to support the elimination of non-medical exemptions as the best solution to weakening herd immunity. Other political analysts fear that vaccines may have the same politicized fate as climate change - despite decades of research and agreement among the scientific community, the issues may be supported by one party, and rejected by the other (Enten, 2017).

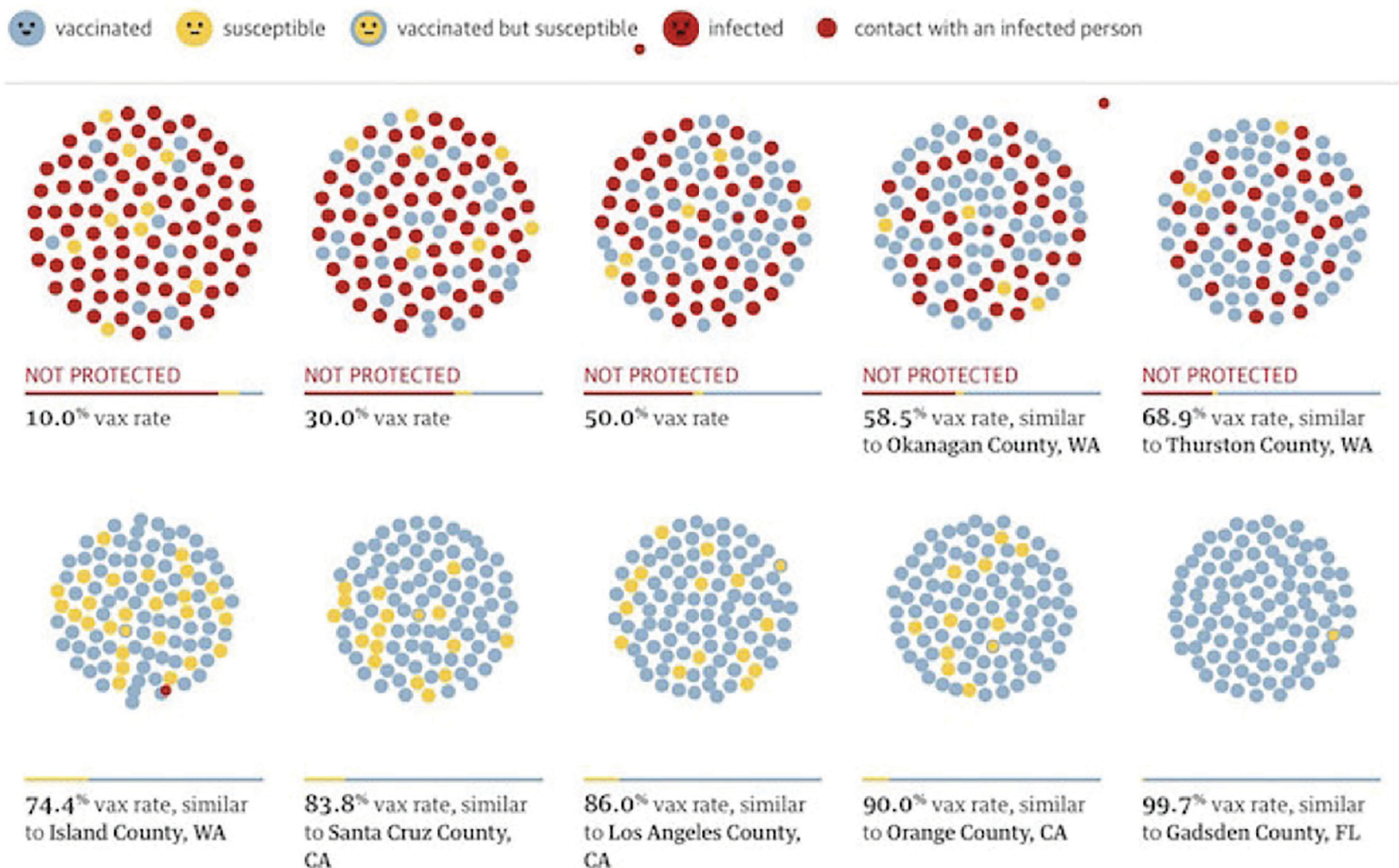
first-hand. Parents must consent to their children being vaccinated. Unfortunately, more frequently now than in the past several decades, doctors are not getting that consent. The average pediatrician treats children from infancy to young adulthood. Allowing voluntarily unvaccinated children into the same waiting room as vulnerable infants and immunodeficient children is a dangerous choice to make. The alternative, however, is turning away families who refuse to vaccinate their children.

When choosing whether or not to turn a family away from their practice, pediatricians must consider a number of factors and situations. Some parents request that vaccinations simply be delayed: they plan for their children to get all recommended vaccines, but would rather space them out over a longer period of time than the Centers for Disease Control recommend. Though this practice is safer than refusing vaccines altogether, it should not be encouraged; children whose vaccines are delayed are left vulnerable to diseases for a longer period of time, and still weaken a community's herd immunity. Other parents are nervous about vaccines, and may choose to only get a few, increasing herd vulnerability to the illnesses that their child is not vaccinated against. Some parents are unsure as to whether or not they want to vaccinate, and hold off on them for an indefinite amount of time. Most doctors feel a duty to try to persuade these parents to vaccinate their

## A Pediatric, Personal Perspective

Though many believe that politicians must find solutions to weakened herd immunity, it is pediatricians who deal with vaccinations

**Figure 3:** Widespread vaccination can eradicate disease.  
Source: Flickr





children. The question then becomes one of how long a pediatrician should try to negotiate with a family before asking them to leave the practice. There are no set guidelines for making these decisions. Though the American Academy of Pediatrics supports doctors who turn away families who refuse to vaccinate, these situations must be dealt with on a case-by-case basis, at the discretion of the doctor. (Haelle, 2013)

A final consequence to consider when turning families away from medical practices is where the families will find care. The families who have been dismissed by their pediatrician will flock to the remaining doctors who will treat unvaccinated patients. The latter doctor's office then becomes a small community with alarmingly low vaccination rate, providing little protection to patients since so many children who visit the office are unvaccinated. A practice like this is also likely to help anti-vaxxers find one another, which encourages the formation of small, unprotected anti-vaccine communities. These communities are the most vulnerable - the small communities in southern California and Hennepin County, Minnesota are unfortunate examples of that.

## A Balancing Act

For pediatricians and politicians alike, the discussed ethical and political issues induce a significant amount of hesitancy when navigating situations with anti-vaccine parents and advocates. Pediatricians will have to continue making decisions for their own practices on whether or not to turn families away - it is unlikely that there will be any guidelines or proven effective strategy to handle anti-vaccine parents anytime soon. Politicians, on the other hand, will likely be addressing the issue of vaccines more and more frequently. The vaccine debate has existed for decades, but has come to national attention recently because of increasingly frequent outbreaks of vaccine-preventable diseases. It is possible that other states will follow suit of California and eliminate non-medical vaccine exemptions. Others may bend to the pressures of anti-vaccine advocacy group, and allow for more easily obtainable philosophical exemptions. The vaccine debate is increasingly prevalent, and it is essential to keep in mind the medical, political, and ethical consequences of the decisions made to address it. **D**

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**Figure 4:** A young child with measles.

**Source:** Flickr.

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